

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of the Claims:

1. (Original) A compound analysis method, the method comprising determining a vector quantity having a number of dimensions equal to a number of features derived from the electrical output of an electrically active cellular network with each component of said vector being representative of a change in said feature resulting from the application of a compound to said electrically active cellular network and classifying said vector in accordance with a predetermined cluster analysis methodology.
2. (Original) A method as claimed in Claim 1, including providing a library of features characterising known compounds such that classification of said vector enables identification of the compound in accordance with a predetermined measure of statistical reliability.
3. (Original) A compound analysis system, the system comprising a micro-electrode array provided by a bio-compatible substrate having a plurality of electrodes situated thereon, said electrodes having an arrangement on said substrate corresponding substantially to that of an electrically active cellular network disposable in use thereon, a multi-channel amplifier coupled to said electrodes and an analyser operatively connected to said amplifier to determine for each active channel a vector quantity having a number of dimensions equal to a number of features derived from the electrical output of said electrically active cellular network with each component of said vector being representative of a change in said feature.
4. (Original) A compound analysis apparatus, the apparatus including a processor and a memory, the processor being operable in response to signals derived from a micro-electrode array connected, in use, thereto, to determine a vector quantity having a number

of dimensions equal to a number of features derived from the electrical output of said micro-electrode array with each component of said vector being representative of a change in said feature, wherein said memory contains a library of features characterising known compounds such that classification of said vector enables identification of a compound deposited, in use, on said array, in accordance with a predetermined measure of statistical reliability.

5. (Original) An apparatus as claimed in Claim 4, including a storage device, such that signals derived from said array are held by said storage device.
6. (Original) A sensor for compound detection, the sensor comprising a receptacle for a micro-electrode array, said receptacle having a connector for receiving electrical signals from said array when received in said receptacle, an amplifier for amplifying said signals and a processor, the processor being operable in response to said signals to determine a vector quantity having a number of dimensions equal to a number of features derived from the electrical output of said micro-electrode array with each component of said vector being representative of a change in said feature.
7. (Original) A sensor as claimed in Claim 6, further including a memory, said memory containing a library of features characterising known compounds such that classification of said vector enables identification of the compound deposited, in use, on said array,
8. (Currently Amended) A sensor as claimed in Claim 6 ~~or Claim 7~~, wherein the memory is integral therewith.
9. (Original) A micro-electrode array for use in compound analysis, the array comprising a bio-compatible substrate having a plurality of electrodes situated thereon, said electrodes being coupled to a connector, said connector providing, in use, electrical connectivity to an analysis apparatus, wherein the array further includes a memory coupled to said connector, said memory being accessible, in use, by said analysis apparatus.

10. (Original) A computer program product in a computer-readable medium for use in a compound analysis apparatus, the computer program product comprising determining a vector quantity having a number of dimensions equal to a number of features derived from an electrical output of a micro-electrode array with each component of said vector being representative of a change in said feature, accessing a memory containing a library of features characterising known compounds and classifying said vector in order to identify a compound deposited, in use, on said array.
11. (Original) A computer program product as claimed in Claim 10, including determining a level of statistical reliability applicable to said identification of said compound.
- 12-13. (Cancelled)